

recommends that factors other than effluent data should be considered in the RPA, *“When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.”* With regard to POTW'S, U.S. EPA recommends that, *“POTW's should also be characterized for the possibility of chlorine and ammonia problems.”* (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving water. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan's narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL's are required.

- (c) **WQBEL's.** This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 16 mg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the MUN beneficial use.
- (d) **Plant Performance and Attainability.** The Facility is designed to provide complete nitrification and denitrification. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Pathogens**

- (a) **WQO.** DDW has developed reclamation criteria, Title 22, for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary

recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as “...an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by DDW’s reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

- (b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life and constitute a threatened pollution and nuisance under California Water Code section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL’s are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, “Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” For priority pollutants, the SIP dictates the procedures for conducting the RPA. Pathogens are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for these non-priority pollutant constituents.

U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).” U.S. EPA’s TSD also recommends that factors other than effluent data should be considered in the RPA, “When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” (TSD, p. 50)

The beneficial uses of San Joaquin River include MUN, water contact recreation, and agricultural irrigation supply. Typically, the Central Valley

T  
E  
N  
T  
A  
T  
I  
V  
E

Water Board requires Title 22 or equivalent tertiary treatment when there is less than 20:1 dilution, based on recommendations by DDW. However, as discussed in section IV.C.2.c of this Fact Sheet, the discharge has at least 20:1 dilution at all times. Although there is 20:1 dilution, tertiary level treatment is required based on the following:

- (1) The Discharger developed its Supplemental EIR and antidegradation analysis based on a Title 22 or equivalent tertiary treatment facility.
- (2) There are four water intakes within 10 miles of the discharge; therefore, providing a high level of disinfection is appropriate to protect the MUN beneficial use.
- (3) The Facility discharges to the Sacramento-San Joaquin Delta. With the significant pelagic decline, the fragile nature of the Delta, unknown Delta stressors, and recent legal decisions on water supply diversions for the Delta, it is prudent to require a high level of treatment for the discharge.

To protect the beneficial uses of the receiving water, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

- (c) **WQBEL's.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 0.2 nephelometric turbidity units (NTU) as a daily average when membrane filtration is used. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 0.2 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 0.5 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD<sub>5</sub>, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

T  
E  
N  
T  
A  
T  
I  
V  
E

Final WQBEL's for BOD<sub>5</sub> and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD<sub>5</sub> is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD<sub>5</sub> and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD<sub>5</sub> and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD<sub>5</sub> and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's and AWEL's for BOD<sub>5</sub> and TSS of 10 mg/L and 15 mg/L, respectively, which are technically based on the capability of a tertiary system.

- (d) **Plant Performance and Attainability.** The Facility is designed to provide tertiary treatment, including UV disinfection. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. pH

- (a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "...pH shall not be depressed below 6.5 nor raised above 8.5."
- (b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH, which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the*

T  
E  
N  
T  
A  
T  
I  
V  
E

*reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” (TSD, p. 50)*

The Facility is a POTW that treats domestic wastewater. Based on effluent pH sampling conducted from January 2015 through December 2017, the maximum pH reported was 8.1 and the minimum was 6.5. Although the Discharger has proper pH controls in place, the pH for the Facility’s influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s numeric objective for pH in the receiving water. Therefore, WQBEL’s for pH are required in this Order.

- (c) **WQBEL’s.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Analysis of effluent pH data shows that immediate compliance with the WQBEL’s is feasible.

vii. **Temperature**

- (a) **WQO.** The Thermal Plan requires that, *“The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.”*
- (b) **RPA Results.** Treated domestic wastewater is an elevated temperature waste, which could cause or threaten to cause the receiving water temperature to exceed temperature objectives established in the Thermal Plan. Therefore, reasonable potential exists for temperature and WQBEL’s are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, *“Limitations must control all pollutants or pollutant parameters (either conventional, non-conventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”* For priority pollutants, the SIP dictates the procedures for conducting the RPA. Temperature is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, *“State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge*

T  
E  
N  
T  
A  
T  
I  
V  
E

*characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." (TSD, p. 50)*

The Facility is a POTW that treats domestic wastewater, which is an elevated temperature waste. This provides the basis for the discharge to have a reasonable potential to cause or contribute to an excursion above the requirements of the Thermal Plan.

- (c) **WQBEL's.** To ensure compliance with the Thermal Plan, an effluent limitation for temperature is included in this Order.
- (d) **Plant Performance and Attainability.** Monitoring data indicates that consistent compliance with the requirements of the Thermal Plan is feasible.

#### 4. WQBEL Calculations

- a. This Order includes WQBEL's for ammonia, BOD<sub>5</sub>, chlorpyrifos, copper, diazinon, electrical conductivity, lead, methylmercury, nitrate plus nitrite, pH, temperature, total coliform organisms, and TSS. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.
- b. **Effluent Concentration Allowance (ECA).** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

$$\begin{aligned} ECA &= C + D(C - B) && \text{where } C > B, \text{ and} \\ ECA &= C && \text{where } C \leq B \end{aligned}$$

where:

ECA = effluent concentration allowance  
D = dilution credit  
C = the priority pollutant criterion/objective  
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum, with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples.

- c. **Primary and Secondary MCL's.** For non-priority pollutants with Primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the Primary MCL and the AWEL is calculated using an AWEL/AMEL multiplier, where the AWEL multiplier is based on a 98<sup>th</sup> percentile occurrence probability and the AMEL multiplier is from Table 2 of the SIP.

TENTATIVE

For non-priority pollutants with Secondary MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the LTA equal to the Secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated using the MDEL multiplier from Table 2 of the SIP.

- d. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The ECA's are converted to equivalent LTA's (i.e.,  $LTA_{acute}$  and  $LTA_{chronic}$ ) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBEL's are calculated using similar procedures, except that an AWEL is determined utilizing multipliers based on a 98<sup>th</sup> percentile occurrence probability.
- e. **Human Health Criteria.** For priority pollutants with human health criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP. For non-priority pollutants with human health criteria, WQBEL's are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$AMEL = mult_{AMEL} \left[ \min \left( \overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right]$$

$$MDEL = mult_{MDEL} \left[ \min \left( M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right]$$

$$MDEL_{HH} = \left( \frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}$$

where:

$mult_{AMEL}$  = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$  = statistical multiplier converting minimum LTA to MDEL

$M_A$  = statistical multiplier converting acute ECA to  $LTA_{acute}$

$M_C$  = statistical multiplier converting chronic ECA to  $LTA_{chronic}$

### Summary of Water Quality-Based Effluent Limitations Discharge Point 001

Table F-18. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	--	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	18	--	36	--	--
Lead, Total Recoverable	µg/L	7.5	--	15	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	0.89	1.7	--	--	--
	lbs/day <sup>1</sup>	32	61	--	--	--
Chlorpyrifos	µg/L	2	3	--	--	--
Diazinon	µg/L	2	3	--	--	--
Electrical Conductivity @ 25°C	µmhos/cm	1,505	--	--	--	--
Methylmercury	grams/year	0.030 <sup>4</sup>	--	--	--	--
Nitrate Plus Nitrite	mg/L	10	16	--	--	--
Temperature	°F	--	--	5	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2 <sup>6</sup>	23 <sup>7</sup>	--	240

<sup>1</sup> Based on an average dry weather flow of 4.3 MGD.

<sup>2</sup> Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{DM-AVG}}{0.079} + \frac{C_{CM-AVG}}{0.012} \leq 1.0$$

$C_{DM-AVG}$  = average monthly diazinon effluent concentration in µg/L.

$C_{CM-AVG}$  = average monthly chlorpyrifos effluent concentration in µg/L.

<sup>3</sup> Average Weekly Effluent Limitation

$$S_{AWEL} = \frac{C_{DW-AVG}}{0.14} + \frac{C_{CW-AVG}}{0.021} \leq 1.0$$

$C_{DW-AVG}$  = average weekly diazinon effluent concentration in µg/L.

$C_{CW-AVG}$  = average weekly chlorpyrifos effluent concentration in µg/L.

<sup>4</sup> The effluent calendar year annual methylmercury load shall not exceed 0.14 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

<sup>5</sup> The maximum temperature of the discharge at Monitoring Location EFF-001 shall not exceed the natural receiving water temperature at Monitoring Location RSW-002 by more than 20°F, year-round.

<sup>6</sup> Applied as a 7-day median effluent limitation.

<sup>7</sup> Not to be exceeded more than once in any 30-day period.

## 5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct WET testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (MRP) (Attachment E, section V). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) The Basin Plan also states that, "...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate..."

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute WET is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA's



September 2010 NPDES Permit Writer's Manual, page 6-30, states, "State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Therefore, acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance," dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Consistent with Order R5-2013-0157-01, effluent limitations for acute toxicity have been included in this Order as follows:

**Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay ----- 70%  
Median for any three consecutive bioassays ----- 90%

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) Table F-19, below, includes chronic WET data for testing performed by the Discharger from January 2015 through December 2017. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

**Table F-19. Whole Effluent Chronic Toxicity Testing Results**

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
10 February 2015 <sup>1</sup>	1	1	1	1	1
10 February 2015 <sup>2</sup>	--	--	1	1	--
21 April 2015	1	1	1	1	1
13 October 2015 <sup>1</sup>	1	1	1	1	1
13 October 2015 <sup>2</sup>	--	--	1	1	--
12 January 2016	1	1	1	1	1
19 April 2016	1	1	1	1	4
4 October 2016	1	1	1	1	4

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival (TUC)	Growth (TUC)	Survival (TUC)	Reproduction (TUC)	Growth (TUC)
4 January 2017	1	1	1	1	1
11 April 2017	1	1	1	1	4
7 November 2017	1	1	1	1	8

<sup>1</sup> Analyses exclude outliers.

<sup>2</sup> Analyses include outliers.

- i. **RPA.** A dilution ratio of 16:1 is available for chronic WET. Chronic toxicity testing results exceeding 16 chronic toxicity units (TUC) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between January 2015 and December 2017, the maximum chronic toxicity result was 8 TUC on 7 November 2017 with a percent effect of 71.91 percent. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream exceedance of the Basin Plan's narrative toxicity objective.

#### D. Final Effluent Limitation Considerations

##### 1. Mass-Based Effluent Limitations

40 C.F.R. section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 C.F.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL's) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia because it is an oxygen demanding substance. In addition, mass-based limits for methylmercury have been established in this Order in accordance with the Delta Methylmercury Control Program. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations were calculated based upon the design flow (average dry weather flow) in Prohibition III.F of this Order.

##### 2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45(d) requires AMEL's and AWEL's for POTW's unless impracticable. For copper and lead, AWEL's have been replaced with MDEL's in accordance with section 1.4 of the SIP. Furthermore, for pH and total coliform organisms, AWEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

TENTATIVE

### 3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for BOD<sub>5</sub> and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2013-0157-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA sections 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent WQBEL's "except in compliance with section 303(d)(4)." CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.
  - i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLA's will assure the attainment of such water quality standards.
  - ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

The San Joaquin River is considered an attainment water for BOD<sub>5</sub> and TSS because the receiving water is not listed as impaired on the 303(d) list for these constituents.<sup>1</sup> As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the MDELs and mass-based effluent limitations for BOD<sub>5</sub> and TSS from Order R5-2013-0157-01 meet the exception in CWA section 303(d)(4)(B).

- b. **Flow.** Order R5-2013-0157-01 included flow as an effluent limit based on the Facility design flow. In accordance with Order R5-2013-0157-01, compliance with the flow limit was calculated using the average monthly flow over three consecutive dry weather months. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

### 4. Antidegradation Policies

The permitted surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy. This Order provides for an increase in the volume and mass of pollutants discharged for copper and lead. The increase will not have a significant impact on beneficial uses and will not cause a

<sup>1</sup> "The exceptions in section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list." State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

violation of water quality objectives. Compliance with these requirements will result in the use of BPTC of the discharge. The impact on existing water quality will be insignificant.

This Order allows for mixing zones and dilution credits for copper and lead in accordance with the Basin Plan, the SIP, U.S. EPA's *Water Quality Standards Handbook, 2<sup>nd</sup> Edition* (updated July 2007), and the TSD. As discussed in section IV.C.2.c of this Fact Sheet, the mixing zones comply with all applicable requirements and will not be adverse to the purpose of the state and federal antidegradation policies. Furthermore, the allowance of mixing zones for these pollutants will result in a minor increase in the discharge, resulting in less than 10 percent of the available assimilative capacity in the receiving water. According to U.S. EPA's memorandum on Tier 2 Antidegradation Reviews and Significance Thresholds, any individual decision to lower water quality for non-bioaccumulative chemicals that is limited to 10 percent of the available assimilative capacity represents minimal risk to the receiving water and is fully consistent with the objectives and goals of the Clean Water Act. The Central Valley Water Board finds that any lowering of water quality outside the mixing zone will be de minimus. Further, any change to water quality will not unreasonably affect present and anticipated beneficial uses and will not result in water quality less than prescribed in State Water Board policies or the Basin Plan. The measures implemented required by this Order result in the implementation of BPTC. Thus, the allowance of mixing zones and dilution credits for copper and lead is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

This Order removes MDEL's and mass-based effluent limitations for BOD<sub>5</sub> and TSS based on 40 C.F.R part 122.45(d) and (f), and as described further in section IV.D.3 of this Fact Sheet. The removal of MDEL's and mass-based effluent limits for BOD<sub>5</sub> and TSS will not result in a decrease in the level of treatment or control, or a reduction in water quality because the WQBEL's for BOD<sub>5</sub> and TSS are based on the technical capability of the tertiary process to meet Title 22, or equivalent, disinfection requirements required to protect the beneficial uses of the receiving water. This is unchanged from the previous permit. Furthermore, both concentration-based AMEL's and AWEL's remain for BOD<sub>5</sub> and TSS, as well as an average dry weather flow prohibition that limits the amount of flow that can be discharged during dry weather months. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and average dry weather flow by a conversion factor to determine the mass-based effluent limitations. Therefore, the Central Valley Water Board finds that the removal of MDEL's and mass-based effluent limits for BOD<sub>5</sub> and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

#### **5. Stringency of Requirements for Individual Pollutants**

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD<sub>5</sub>, pH, and TSS. Restrictions on these constituents are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. For BOD<sub>5</sub>, pH, and TSS, both technology-based effluent limitations and WQBEL's are applicable. The more stringent of these effluent limitations are implemented by this Order. These limitations are not more stringent than required by the CWA.

T  
E  
N  
T  
A  
T  
I  
V  
E

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBEL's for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations  
Discharge Point 001**

**Table F-20. Summary of Final Effluent Limitations**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Copper, Total Recoverable	µg/L	18	--	36	--	--	CTR
Lead, Total Recoverable	µg/L	7.5	--	15	--	--	CTR
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L	0.89	1.7	--	--	--	NAWQC
	lbs/day <sup>2</sup>	32	61	--	--	--	
Chlorpyrifos	µg/L	3	4	--	--	--	TMDL
Diazinon	µg/L	3	4	--	--	--	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	1,505	--	--	--	--	AP
Methyl-mercury	grams/year	0.030 <sup>5</sup>	--	--	--	--	TMDL
Nitrate Plus Nitrite (as N)	mg/L	10	16	--	--	--	MCL
Temperature	°F	--	--	6	--	--	TP
Total Coliform Organisms	MPN/100 mL	--	2.2 <sup>7</sup>	23 <sup>8</sup>	--	240	Title 22
Acute Toxicity	% survival	--	--	70 <sup>9</sup> /90 <sup>10</sup>	--	--	BP

**TENTATIVE**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

<sup>1</sup> TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.

CFR – Based on secondary treatment standards contained in 40 C.F.R part 133.

BP – Based on water quality objectives contained in the Basin Plan.

CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.

NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.

TMDL – Based on the WLA's in the applicable TMDL.

AP – Based on the Antidegradation Policy.

MCL – Based on the Primary Maximum Contaminant Level.

TP – Based on the Thermal Plan.

Title 22 – Based on DDW Reclamation Criteria, CCR, division 4, chapter 3.

<sup>2</sup> Based on an average dry weather flow of 4.3 MGD.

<sup>3</sup> Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{DM-AVG}}{0.079} + \frac{C_{CM-AVG}}{0.012} \leq 1.0$$

$C_{DM-AVG}$  = average monthly diazinon effluent concentration in µg/L.

$C_{CM-AVG}$  = average monthly chlorpyrifos effluent concentration in µg/L.

<sup>4</sup> Average Weekly Effluent Limitation

$$S_{AWEL} = \frac{C_{DW-AVG}}{0.14} + \frac{C_{CW-AVG}}{0.021} \leq 1.0$$

$C_{DW-AVG}$  = average weekly diazinon effluent concentration in µg/L.

$C_{CW-AVG}$  = average weekly chlorpyrifos effluent concentration in µg/L.

<sup>5</sup> The effluent calendar year annual methylmercury load shall not exceed 0.14 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

<sup>6</sup> The maximum temperature of the discharge at Monitoring Location EFF-001 shall not exceed the natural receiving water temperature at Monitoring Location RSW-002 by more than 20°F, year-round.

<sup>7</sup> Applied as a 7-day median effluent limitation.

<sup>8</sup> Not to be exceeded more than once in any 30-day period.

<sup>9</sup> 70% minimum of any one bioassay.

<sup>10</sup> 90% median for any three consecutive bioassays.

## E. Interim Effluent Limitations

The State Water Board's Resolution 2008-0025 "*Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*" (Compliance Schedule Policy) requires the Central Valley Water Board to establish interim numeric effluent limitations in this Order for compliance schedules longer than 1 year. As discussed in section VI.B.7 of this Fact Sheet, the Central Valley Water Board is approving a compliance schedule longer than 1 year for methylmercury. The Compliance Schedule Policy requires that interim effluent limitations be based on current Facility performance or existing permit limitations, whichever is more stringent. Consistent with the Delta Mercury Control Program, this Order includes interim effluent limitations for total mercury based on Facility performance.

- 1. Compliance Schedule for Methylmercury.** This Order contains a final effluent limitation for methylmercury based on the Basin Plan's Delta Mercury Control Program that became effective on 20 October 2011. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application demonstrates the need for additional time to implement actions to comply with the final effluent limitations, as described below.

TENTATIVE

Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury is established in the Order.

A compliance schedule is necessary because the Discharger must implement actions, including a Phase 1 Methylmercury Control Study and possible upgrades to the Facility, to comply with the final effluent limitations.

The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The Discharger conducted monthly monitoring for mercury and methylmercury during the term of Order R5-2013-0157-01. The Discharger has developed and continues to implement a pollution prevention plan for mercury, which was submitted to the Central Valley Water Board on 8 December 2009, and provided annual progress reports during the term of Order R5-2013-0157-01.

The compliance schedule is as short as possible. The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. Therefore, at this time, it is uncertain what measures must be taken to consistently comply with the WLA for methylmercury. The interim effluent limits and final compliance date may be modified at the completion of Phase 1.

Interim performance-based limitations have been included in this Order. The interim limitations were determined as described in section IV.E.2, below, and are in effect until the final limitations take effect. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

2. **Interim Limits for Total Mercury.** The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or previous final permit limitations, whichever is more stringent. When feasible, interim limitations must correspond with final permit effluent limitations with respect to averaging bases (e.g., AMEL, MDEL, AWEL, etc.) for effluent limitations for which compliance protection is intended.

The interim effluent limitations for total mercury are based on Facility performance. The Delta Mercury Control Program requires POTW's to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9<sup>th</sup> percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges.

This Order retains the interim performance-based effluent limitation for total mercury from Order R5-2013-0157-01, which is consistent with the intent of the TMDL to not penalize dischargers for early actions to reduce mercury. The interim effluent limitation for total mercury shall apply in lieu of the final effluent limitation for methylmercury.

The Central Valley Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with final

TENTATIVE

effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

**F. Land Discharge Specifications – Not Applicable**

Land discharge specifications for the Facility are included in separate WDR Order R5-2013-0010-001, as amended by Order R5-2018-0050.

**G. Recycling Specifications**

Recycling specifications for the Facility are included in separate WDR Order R5-2013-0010-001, as amended by Order R5-2018-0050.

**V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

**A. Surface Water**

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria, where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.
  - a. **Temperature.** The Thermal Plan is applicable to the discharge from the Facility. For the purposes of the Thermal Plan, the discharge is considered to be an Existing Discharge of Elevated Temperature Waste to an Estuary, as defined in the Thermal Plan. Therefore, the Discharger must meet the water quality objective at section 5.A.(1) of the Thermal Plan, which requires compliance with the following:
    - i. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
    - ii. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.
    - iii. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.
    - iv. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

This Order contains receiving water limitations for temperature based on the Thermal Plan.

**B. Groundwater – Not Applicable**

TENTATIVE



## VI. RATIONALE FOR PROVISIONS

### A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The Discharger must comply with all Standard Provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

### B. Special Provisions

#### 1. Reopener Provisions

- a. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the final compliance date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and WLA's after implementing all reasonable load reduction strategies. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.
- b. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following Water Code section 13263.3(d)(3) for mercury and salinity. This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans.
- c. **Whole Effluent Toxicity (WET).** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.
- d. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger

TENTATIVE

performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

- e. **Drinking Water Policy.** On 26 July 2013, the Central Valley Water Board adopted Resolution R5-2013-0098, amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- f. **Diazinon and Chlorpyrifos Basin Plan Amendment.** This provision allows the Central Valley Water Board to reopen this Order to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.
- g. **Ultraviolet Light (UV) Disinfection Operating Specifications.** UV system operating specifications are required to ensure that the UV system is operated to achieve the required pathogen removal. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors, such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. The UV specifications in this Order are based on the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI Guidelines), and the Discharger's site-specific UV Check Point Bioassay Study. If the Discharger conducts additional site-specific UV engineering studies that identify alternative UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications, in accordance with Reopener Provision VI.C.1.f.
- h. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board approved Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.

## 2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity (WET) Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from January 2015 through December 2017, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

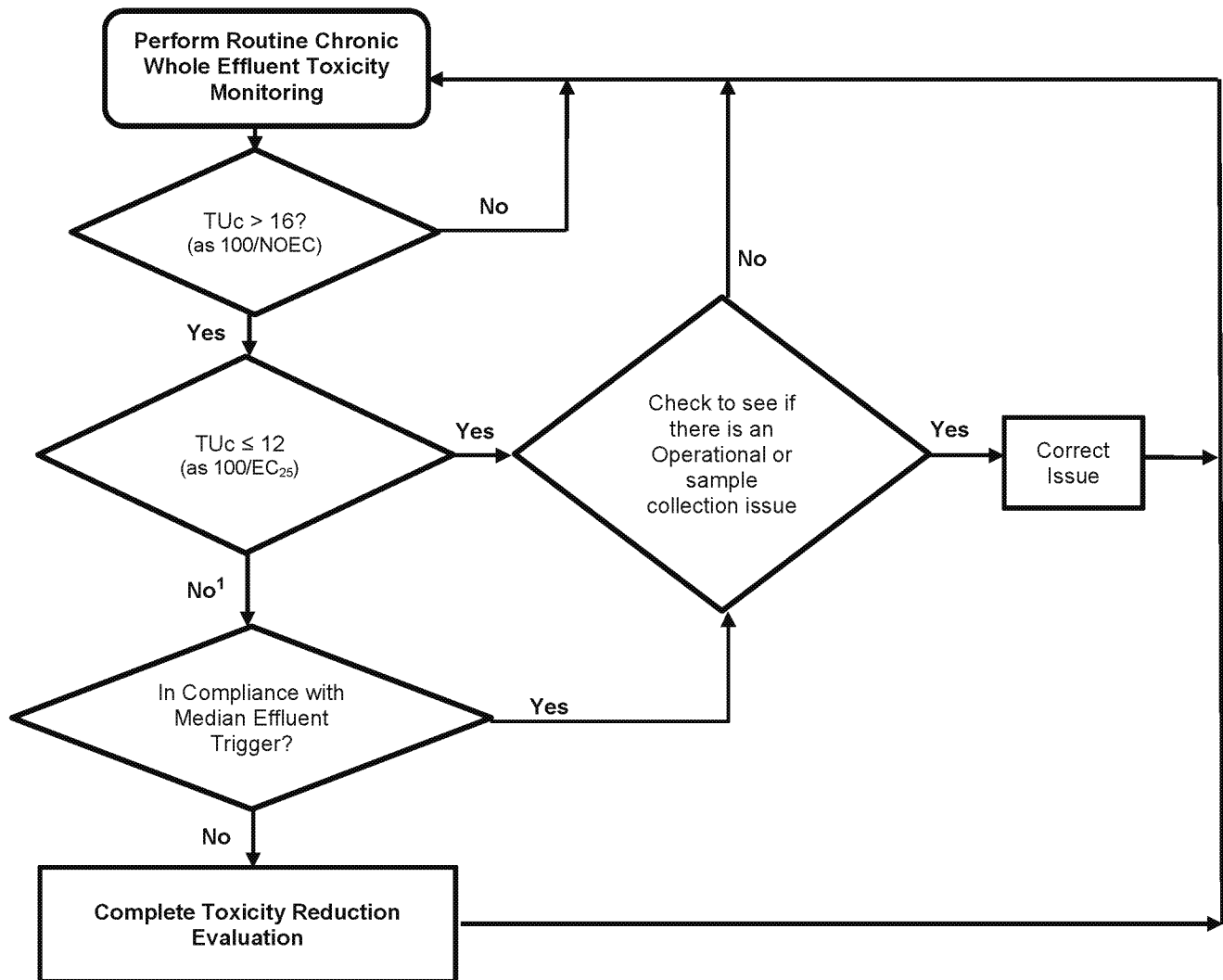
The MRP of this Order requires chronic WET monitoring for demonstration of compliance with the Basin Plan's narrative toxicity objective. If the discharge

exceeds the chronic toxicity monitoring trigger, this provision requires the Discharger conduct a site-specific TRE.

See the WET Monitoring Flow Chart (Figure F-2), below, for further clarification of the decision points for determining the need for TRE initiation.

T  
E  
N  
T  
A  
T  
I  
V  
E

Figure F-2  
WET Accelerated Monitoring Flow Chart



TENTATIVE

<sup>1</sup> The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.

- b. **Phase 1 Methylmercury Control Study.** The Basin Plan's Delta Mercury Control Program requires NPDES dischargers, working with other stakeholders, to conduct methylmercury control studies (Phase 1 Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and WLA's. Phase 1 Control Studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. The Discharger participated in the CVCWA Coordinated Methylmercury Control Study (Methylmercury Control Study), and the final CVCWA Methylmercury Control Study is due to the Central Valley Water Board by 20 October 2018 per Order R5-2013-0157-01. This Order requires the Discharger to implement the implementation plan and schedule proposed in the final study to comply with methylmercury allocations as soon as possible.

### 3. Best Management Practices and Pollution Prevention

- a. **Water Code Section 13263.3(d)(3) Pollution Prevention Plans.** Pollution prevention plans for mercury and salinity are required in this Order per Water Code section 13263.3(d)(1)(C). The pollution prevention plans required in sections VI.C.3.a and VI.C.3.b of this Order, shall, at a minimum, meet the requirements outlined in Water Code section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:
- i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
  - ii. An analysis of the methods that could be used to prevent the discharge of the pollutant into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis shall also identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.
  - iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.
  - iv. A plan for monitoring the results of the pollution prevention program.
  - v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.
  - vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.
  - vii. A description of the Discharger's existing pollution prevention programs.
  - viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

- ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

b. **Mercury Exposure Reduction Program (MERP).** The Basin Plan's Delta Mercury Control Program requires dischargers to participate in a MERP. The MERP is needed to address public health impacts of mercury in Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta caught fish, such as subsistence fishers and their families. The MERP must include elements directed toward:

- i. Developing and implementing community-driven activities to reduce mercury exposure;
- ii. Raising awareness of fish contamination issues among people and communities most likely affected by mercury in Delta-caught fish such as subsistence fishers and their families;
- iii. Integrating community-based organizations that serve Delta fish consumers, tribes, and public health agencies in the design and implementation of an exposure reduction program;
- iv. Identifying resources, as needed, for community-based organizations and tribes to participate in the MERP;
- v. Utilizing and expanding upon existing programs and materials or activities in place to reduce mercury, and as needed, create new materials or activities; and
- vi. Developing measures for program effectiveness.

This Order requires the Discharger participate in a MERP in accordance with the Delta Mercury Control Program. The Discharger has elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the MERP objective, elements, and the Discharger's coordination with other stakeholders. The Discharger shall continue to participate in the group effort to implement the work plan through 2020 or until they comply with all requirements related to the individual or subarea methylmercury allocation. The Discharger shall notify the Central Valley Water Board if it plans to perform mercury exposure reduction activities individually.

#### 4. Construction, Operation, and Maintenance Specifications

- a. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility includes membrane filtration, which is capable of reliably meeting a turbidity limitation of 0.2 nephelometric turbidity units (NTU) at least 95 percent of the time. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring membrane performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time and a daily maximum of 0.5 NTU.

TENTATIVE

- b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** This Order requires that wastewater be oxidized, coagulated, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent. To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The NWRI Guidelines include UV operating specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the *Treatment Technology Report for Recycled Water*, December 2009 (or a later version, as applicable) published by DDW. The UV system shall also conform to all requirements and operating specifications of the NWRI Guidelines. A memorandum dated 1 November 2004 issued by DDW to Regional Water Board Executive Officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish a fixed cleaning frequency of lamp sleeves, as well as specifying a minimum delivered UV dose to be maintained by the Discharger (per the NWRI Guidelines).

The Discharger conducted a UV Check Point Bioassay Study that demonstrates the UV system is equivalent to a Title 22 approved UV system. DDW approved the study results by letter dated 16 July 2012. The study results demonstrate that a minimum hourly average UV dose of 80 mJ/cm<sup>2</sup> with a minimum UV transmittance of 55 percent will achieve the virus inactivation required by Title 22 for Disinfected Tertiary Recycled Water. Therefore, in lieu of the UV dose and transmittance requirements of the NWRI Guidelines, this Order includes an operating specification for a minimum hourly average UV dosage of 80 mJ/cm<sup>2</sup> and a UV transmittance of 55 percent, in accordance with the site-specific validation testing.

## 5. Special Provisions for Publicly-Owned Treatment Works (POTW's)

- a. **Collection System.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The State Water Board amended the MRP for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMP's) and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.

The General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows that are more extensive, and therefore, more stringent than the requirements under federal standard provisions. The Discharger and public agencies that are discharging wastewater into the Facility's collection system were required to obtain enrollment for regulation under the General Order by 1 December 2006.

## 6. Other Special Provisions

- a. **Title 22, or Equivalent, Disinfection Requirements.** Consistent with Order R5-2013-0157-01, this Order requires the discharge to be oxidized, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent.

## 7. Compliance Schedules

In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The Compliance Schedule Policy allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed 10 years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

In accordance with the Compliance Schedule Policy and 40 C.F.R. section 122.47, a discharger who seeks a compliance schedule must demonstrate additional time is necessary to implement actions to comply with a more stringent permit limitation. The Discharger must provide the following documentation as part of the application requirements:

- a. Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;
- b. Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established;
- c. A proposed schedule for additional source control measures or waste treatment;
- d. Data demonstrating current Facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;
- e. The highest discharge quality that can reasonably be achieved until final compliance is attained;
- f. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and
- g. Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the ROWD, SMR's, and other miscellaneous submittals, it has been demonstrated to the satisfaction of the Central Valley Water Board that the Discharger needs time to implement actions to comply with the final effluent limitations for methylmercury.

The Delta Mercury Control Program is composed of two phases. Phase 1 spans from 20 October 2011 through the Phase 1 Delta Mercury Control Program Review, expected to conclude October 2020. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic

T  
E  
N  
T  
A  
T  
I  
V  
E



(total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetlands, and open-water habitats; and reducing total mercury loading to the San Francisco Bay, as required by the *Water Quality Control Plan for the San Francisco Bay*.

At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and WLA's after implementing all reasonable load reduction strategies. The review will also consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, and fish consumption) of attaining the allocations. The fish tissue objectives, linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.

Phase 2 begins after the Phase 1 Delta Mercury Control Program Review or by 20 October 2020, whichever occurs first, and ends in 2030. During Phase 2, dischargers shall implement methylmercury control programs and continue inorganic (total) mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2. Any compliance schedule contained in an NPDES permit must be "...an enforceable sequence of actions or operations leading to compliance with an effluent limitation..." per the definition of a compliance schedule in CWA section 502(17). See also 40 C.F.R. section 122.2 (definition of schedule of compliance). The compliance schedule for methylmercury meets these requirements.

Federal regulations at 40 C.F.R. section 122.47(a)(1) require that, "*Any schedules of compliance under this section shall require compliance as soon as possible...*" The Compliance Schedule Policy also requires that compliance schedules are as short as possible and may not exceed 10 years, except when "...a permit limitation that implements or is consistent with the waste load allocations specified in a TMDL that is established through a Basin Plan amendment, provided that the TMDL implementation plan contains a compliance schedule or implementation schedule." As discussed above, the Basin Plan's Delta Mercury Control Program includes compliance schedule provisions and allows compliance with the WLA's for methylmercury by 2030. Until the Phase 1 Control Studies are complete and the Central Valley Water Board conducts the Phase 1 Delta Mercury Control Program Review, it is not possible to determine the appropriate compliance date for the Discharger that is as soon as possible. Therefore, this Order establishes a compliance schedule for the final WQBEL's for methylmercury with full compliance required by 31 December 2030, which is consistent with the Final Compliance Date of the TMDL. At completion of the Phase 1 Delta Mercury Control Program Review, the final compliance date for this compliance schedule will be re-evaluated to ensure compliance is required as soon as possible. Considering the available information, the compliance schedule is as short as possible in accordance with federal regulations and the Compliance Schedule Policy.

## VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry,

TENTATIVE

reporting, and recordkeeping requirements. The MRP, Attachment E of this Order, establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

**A. Influent Monitoring**

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD<sub>5</sub> and TSS reduction requirements). The monitoring frequencies for flow (continuous), BOD<sub>5</sub> (weekly), TSS (weekly), and electrical conductivity (weekly) have been retained from Order R5-2013-0157-01.

**B. Effluent Monitoring**

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2), effluent monitoring is required for all constituents with effluent limitations or discharge prohibitions. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for flow (continuous), BOD<sub>5</sub> (twice per week), pH (continuous), TSS (twice per week), mercury (monthly), ammonia (weekly), chlorine residual (daily, when used in the treatment process for maintenance purposes), chlorpyrifos (annually), diazinon (annually), electrical conductivity (weekly), hardness (monthly), methylmercury (monthly), nitrate plus nitrite (monthly), nitrite (monthly), and temperature (continuous) have been retained from Order R5-2013-0157-01 to determine compliance with effluent limitations and discharge prohibitions for these parameters.
3. Monitoring data collected during the term of Order R5-2013-0157-01 indicates that copper and lead in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above the applicable CTR criteria for the protection of freshwater aquatic life. Therefore, this Order establishes monthly effluent monitoring requirements for copper and lead to determine compliance with the applicable effluent limitations.
4. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern quarterly during the year 2021. This monitoring frequency has been retained from Order R5-2013-0157-01. See section IX.C of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.
5. Water Code section 13176, subdivision (a), states: *"The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of chapter 4 of part 1 of division 101 of the Health and Safety Code."* DDW accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA (Wat. Code §§ 13370, subd. (c), 13372, 13377). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements (Wat. Code § 13372, subd. (a)). The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. § 136.3(e), Table II). Due to

T  
E  
N  
T  
A  
T  
I  
V  
E

the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order R5-2013-0157-01, monthly 96-hour bioassay testing is required, when discharging to the San Joaquin River, to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Consistent with Order R5-2013-0157-01, quarterly chronic WET testing is required in order to demonstrate compliance with the numeric chronic toxicity effluent limitation.

The most sensitive species to be used for chronic toxicity testing was determined in accordance with the process outlined in the MRP, section V.E.2. Based on the Discharger's last 3 years of chronic toxicity data, the species that exhibited the maximum chronic toxicity result was the green alga (*Selanastrum capricornutum*), with a result of 8 TUC and a percent effect of 71.91 percent. Consequently, *Selanastrum capricornutum* has been established as the most sensitive species for chronic WET testing.

### D. Receiving Water Monitoring

#### 1. Surface Water

- a. **Delta Regional Monitoring Program.** The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively, and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than continue to be used in individual, uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program will provide data to better inform management and policy decisions regarding the Delta.

The Discharger is required to participate in the Delta Regional Monitoring Program. Delta Regional Monitoring Program data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Order. Delta Regional Monitoring Program monitoring stations are established generally as "integrator sites" to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data may be used to help establish background receiving water quality for an RPA in an NPDES permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data

TENTATIVE

from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

Participation in the Delta Regional Monitoring Program by a Discharger shall consist of providing funds and/or in-kind services to the Delta Regional Monitoring Program.

Since the Discharger is required to participate in the Delta Regional Monitoring Program, this Order does not require receiving water characterization monitoring for purposes of conducting the RPA. However, the ROWD for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents<sup>1</sup> during the term of the permit. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with the ROWD. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Historic receiving water monitoring data taken by the Discharger and from other sources may also be evaluated to determine whether or not that data is representative of current receiving water conditions. If found to be representative of current conditions, then that historic data may be used in characterizing receiving water quality for the purposes of the RPA.

- b. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- c. The receiving water monitoring frequency and sample type for temperature (monthly) at Monitoring Location RSW-002 have been retained from Order R5-2013-0157-01 to determine compliance with the applicable receiving water limitation and characterize the receiving water for this parameter.
- d. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires the ROWD for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents during the term of the permit, in order to collect data to conduct an RPA for the next permit renewal.

## **2. Groundwater – Not Applicable**

### **E. Other Monitoring Requirements**

#### **1. Water Supply Monitoring**

Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2013-0157-01, this Order requires annual water supply monitoring for electrical conductivity, standard minerals, and total dissolved solids at Monitoring Location SPL-001.

#### **2. Filtration System Monitoring**

Filtration system monitoring and reporting are required to determine compliance with the operation specifications for turbidity in Special Provision VI.C.4.a. Consistent with Order R5-2013-0157-01, this Order requires continuous turbidity monitoring at Monitoring

<sup>1</sup> Appendix A to 40 C.F.R. part 423.

Location FIL-001 to ensure the operational specifications for turbidity are being met prior to the disinfection process.

**3. UV Disinfection System Monitoring**

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the tertiary treated wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by DDW, the NWRI Guidelines, and the Discharger's site-specific UV Check Point Bioassay Study.

**4. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program**

Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires all dischargers under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from their own laboratories or their contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall submit annually the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

**VIII. PUBLIC PARTICIPATION**

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Ironhouse Sanitary District Water Recycling Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

**A. Notification of Interested Persons**

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following <Describe Notification Process (e.g., newspaper name and date)>

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:

[http://www.waterboards.ca.gov/centralvalley/board\\_info/meetings/](http://www.waterboards.ca.gov/centralvalley/board_info/meetings/)

**B. Written Comments**

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

TENTATIVE

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on <DATE>.

**C. Public Hearing**

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: **6/7 December 2018**  
Time: 8:30 a.m.  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

**D. Reconsideration of Waste Discharge Requirements**

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and CCR, Title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board  
Office of Chief Counsel  
P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

Or by email at [waterqualitypetitions@waterboards.ca.gov](mailto:waterqualitypetitions@waterboards.ca.gov)

For instructions on how to file a petition for review, see  
[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality/wqpetition\\_instr.shtml](http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

**E. Information and Copying**

The ROWD, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

**F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Dania Jimmerson at (916) 464-4742.

TENTATIVE

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia Nitrogen, Total (as N)	mg/L	0.35	0.149	2.14	2.14 <sup>1</sup>	2.63 <sup>2</sup>	--	--	--	--	Yes <sup>3</sup>
Benzo(a)pyrene	µg/L	0.423	<0.40	0.0044	--	--	0.0044	0.049	--	0.20	No <sup>3</sup>
Benzo(b)fluoranthene	µg/L	0.375	<0.37	0.0044	--	--	0.0044	0.049	--	--	No <sup>3</sup>
Chloride	mg/L	180	192	230	860 <sup>1</sup>	230 <sup>4</sup>	--	--	155 <sup>5</sup>	250	No <sup>3</sup>
Copper, Total Recoverable	µg/L	10.5	4.02	8.4	12	8.4	1,300	--	10.4	1,000	Yes
Dibenzo(a,h)anthracene	µg/L	0.883	<0.37	0.0044	--	--	0.0044	0.049	--	--	No <sup>3</sup>
Electrical Conductivity @ 25°C	µmhos/cm	1,490	861	440 <sup>6</sup>	--	--	--	--	440 <sup>7</sup>	900	No <sup>3</sup>
Indeno(1,2,3-cd)pyrene	µg/L	0.714	<0.38	0.0044	--	--	0.0044	0.049	--	--	No <sup>3</sup>
Lead, Total Recoverable	µg/L	3.9	0.419	2.2	56	2.2	--	--	--	15	Yes
Mercury, Total Recoverable	µg/L	0.0389	0.0757	0.050	--	--	0.050	0.051	--	--	Yes <sup>3</sup>
Methylmercury	µg/L	<7.44 x 10 <sup>-5</sup>	4.0 x 10 <sup>-5</sup>	--	--	--	--	--	--	--	Yes <sup>3</sup>
Nitrate, Total (as N)	mg/L	11	0.30	10	--	--	--	--	--	10	Yes
Nitrite, Total (as N)	mg/L	0.030	0.020	1.0	--	--	--	--	--	1.0	No
Sulfate	mg/L	122 <sup>8</sup>	25 <sup>8</sup>	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	660 <sup>8</sup>	290 <sup>8</sup>	500	--	--	--	--	--	500	No <sup>3</sup>

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

Footnotes:

- (1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
- (2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
- (3) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.
- (4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
- (5) The Basin Plan contains site-specific water quality objectives for chloride at the Antioch Water Works Intake based on the 2006 Bay-Delta Plan, which are dependent on water year type.
- (6) Criteria to be compared to the maximum upstream receiving water concentration.
- (7) The Basin Plan contains site-specific water quality objectives for electrical conductivity at Jersey Point based on the Bay-Delta Plan, which are dependent on water year type.
- (8) Represents the maximum observed annual average concentration for comparison with the MCL.

TENTATIVE

ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations										
Parameter	Units	Criteria	Maximum Background Concentration	CV Eff <sup>1</sup>	Dilution Factor	AWEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Nitrate Nitrogen, Total (as N)	mg/L	10	0.30	0.47	--	1.59	1.43	10	--	16

<sup>1</sup> Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

Aquatic Life WQBEL's Calculations																	
Parameter	Units	Criteria		B	CV Eff <sup>1</sup>	Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC			CMC	CCC	ECA Multiplier <sup>acute</sup>	LTA <sup>acute</sup>	ECA Multiplier <sup>chronic</sup>	LTA <sup>chronic</sup>	AMEL Multiplier <sup>95</sup>	AWEL Multiplier	MDEL Multiplier <sup>99</sup>	AMEL <sup>2</sup>	AWEL <sup>3</sup>	MDEL <sup>4</sup>
Ammonia Nitrogen, Total (as N)	mg/L	2.14	2.63	0.149	0.89	--	--	0.225	0.48	0.695	1.8 <sup>5</sup>	1.84	3.60	--	0.89	1.7	--
Copper, Total Recoverable	µg/L	6.4 <sup>8</sup>	4.6 <sup>8</sup>	4.02	0.60	20	28	0.321	17 <sup>6</sup>	0.527	12 <sup>7</sup>	1.55	--	3.11	18	--	36
Lead, Total Recoverable	µg/L	29 <sup>8</sup>	1.1 <sup>8</sup>	0.419	0.60	--	11.5	0.321	9.2	0.527	4.8 <sup>7</sup>	1.55	--	3.11	7.5	--	15

<sup>1</sup> CV was established in accordance with section 1.4 of the SIP.

<sup>2</sup> Average Monthly Effluent Limitations are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.

<sup>3</sup> Average Weekly Effluent Limitations are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.

<sup>4</sup> Maximum Daily Effluent Limitations are calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.

<sup>5</sup> The LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30.

<sup>6</sup> The LTA was calculated based on a design ambient hardness of 44 mg/L corresponding to the conditions at the edge of the permitted acute aquatic life mixing zone.

<sup>7</sup> The LTA was calculated based on a design ambient hardness of 44 mg/L corresponding to the conditions at the edge of the permitted chronic aquatic life mixing zone.

<sup>8</sup> Due to the allowance of a mixing zone and use of assimilative capacity, the minimum upstream receiving water hardness of 44 mg/L (as CaCO<sub>3</sub>) was used to calculate the CTR criteria.

TENTATIVE